First High-Contrast Science with an IFU: the Sub-Stellar Companion to GQ Lup

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We present high-contrast integral field spectroscopy with Keck AO+OSIRIS of the young star GQ Lup and its close-in sub-stellar companion - claimed to be the first, and only, planet directly imaged around a hydrogen-burning star. By enabling two-dimensional sampling of the bright halo of the primary, OSIRIS allows us to accurately estimate the host-star contamination in the spectrum of the sub-stellar companion - an otherwise challenging task for conventional AO slit spectroscopy in the constrast-limited regime. Our OSIRIS spectra do not confirm the planetary-mass status of GQ Lup B. However, we suggest an approach for improving the sensitivity of conventional AO surveys for sub-stellar companions using integral field spectroscopy.